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PEARL COHEN ZEDEK, LLP 1500 BROADWAY 12TH FLOOR NEW YORK, NY 10036			HOSSAIN, FARZANA E	
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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/830,015	Applicant(s) WEINSTEIN ET AL.	
	Examiner Farzana E. Hossain	Art Unit 2623	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 58-95 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 58-95 is/are rejected.
- 7) ☒ Claim(s) 1-57, 60, 62, 68, 69, 81, 88, 90, 94 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>02/02/2003</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The examiner considered the incorrectly titled patent (US 5,301,245) - Endoh - and did not consider incorrectly titled patent (US 5,391,245) – Turner - which did not seem relevant to the application. The patent numbers were considered correct.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the compensation unit and its components, the extension unit to the set top box, the home outlet unit, enhanced home outlet unit, and the home outlet splitter unit must be shown more clearly or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

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changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. Figure 6 shows the satellite tuner frequencies 1050-3000 MHz going toward the RF Switch as IF. A down converter is not in the Figure nor described in the disclosure.

### ***Specification***

4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;

- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract should describe the claimed invention including the compensation unit, hub, node, and extension unit to a set top box.

5. The disclosure is objected to, as it does not clarify the material for a reasonable search by the examiner. Claims 81-90 are not fully described in the Figures or disclosure.

Applicant is required to submit an amendment, which clarifies the disclosure so that the examiner may make a proper comparison of the invention with the prior art.

Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "filtering the broadband signal...according to predefined parameters relating to signal content type and direction of the broadband signal; and tuning the divided signal for controlling the division of the divided signal into predefined frequency regions" that is found in currently filed claim 87, and prior to preliminary amendment claim 41.

***Claim Objections***

7. Claims 1-57 are objected to because of the following informalities: Claims are not listed in the claims as cancelled. The applicant should have "Claims 1-57 (Cancelled) or the equivalent. Appropriate correction is required.

8. Claims 60, 88, 94 are objected to as the claims recite "between about 1 GHz and 3 GHz" or the like. The examiner interprets "about 1 GHz" or about 1000 MHz to be 950 MHz. See rejections below.

9. Claim 62 is objected to because of the following informalities: The claim refers to an upgrade hub or module. The disclosure does not have any reference to an upgrade hub or node module. There is reference to a hub module.

Appropriate correction is required.

10. Claim 68 is objected to because of the following informalities: The claim recites "the compensation frequency selective circuit is a single stage multiplexer for separating." The Office assumes the compensation frequency selective circuit is a single stage multiplexer for separating..." to be --the compensation unit's frequency selective circuit is a single stage multiplexer filter for separating--.

Appropriate correction is required.

11. Claim 69 has the misspelled word "slope". Appropriate correction is required.

12. Claim 81 is objected to because of the following informalities: Claim 81 recites “an downstream and upstream pass regions.” The Office assumes “an downstream and upstream pass regions” to be --downstream and upstream pass regions--. Appropriate correction is required.

13. Claim 90 is objected to because of the following informalities: Claim 90 recites, “an extension unit ...or decoding the broadband signal in order the enable...” The Office assumes “an extension unit ...for decoding the broadband signal in order the enable...” to be --an extension unit ...for decoding the broadband signal in order to enable--.

***Claim Rejections - 35 USC § 112***

14. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. Claim 59 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim limitation of distribution of text is not found

in the disclosure. The claim limitation was not found among the original claims 1-57 and therefore is considered new matter.

16. Claims 81-83, 87-95 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims are not described fully in the specification including but not limited to the following:

Claim 81 is not described the specification for the connection to the extension unit to a set top box with the various components.

Claim 87 is not fully described in the specification for subject matter filtering the broadband signal dividing the broadband signal according to frequency regions and according to predefined parameters relating to signal content type and direction of the broadband signal; and tuning the divided signal for controlling the division of the divided signal into predefined frequency regions.

Similar limitations are found in other independent claims.

### ***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 58-61, 66-69, 73, 74, 76, 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US 5,774,458) in view of Terry et al (US 5,499,047 and hereafter referred to as "Terry"), Eldering et al (US 5,881,362 and hereafter referred to as "Eldering") and Rakib et al (US 2004/0172658 and hereafter referred to as "Rakib"). (Note: Williamson (Column 3, lines 35-41) incorporates Adams et al (US 5,819,036, Application number 08/572,521 and hereafter referred to "Adams") by reference for a more detailed description of the network.)

Regarding Claim 58, Williamson discloses a system for extending the transmission bandwidth of a communication network across an enhanced range of frequencies (Column 4, lines 39041), the network comprising a head end unit (Figure 1, 12), at least one hub or node connected to the head end unit (Figure 1, 26, a plurality of set top boxes (STB), the enhanced range of frequencies comprising a frequency range already in use by the communications network (Figures 4-5) and extended frequency range (550-1000 MHz) for signals from the headend (Figure 1, 12), the system comprising: a plurality of compensation units distributed at predetermined locations within the network for refreshing and maintaining the characteristics of the extended frequency range to overcome line drop losses associated with the extended frequency range due to network infrastructure topography or amplifier or amplifiers (Figures 4, 5, 6), which are placed along the feeder cable to amplify the signal, each compensation unit comprises a frequency selective circuit for selecting the extended frequency range (Column 5, lines 13-31) and an amplifying circuit for amplifying the selected extended

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frequency range (Column 5, lines 13-31). Williamson is silent on the extended range of frequencies beyond 1 GHz for additional channels, a plurality of home outlet units with a plurality of STBs connected each to the home outlet unit and an enhanced home outlet unit comprising a frequency conversion filtering circuit for separating the extended frequency range from the frequency range already in use, an extension unit to a STB for controlling the additional channels in order to enable the user to interact with the additional channels; whereby enabling transmission of data an extended data range of frequencies and at substantially higher data rates.

Terry discloses a cable television network (Figure 1), from a headend for transmitting television signals to customer premises (Column 4, lines 38-50, Column 5, lines 33-41). Terry discloses compensation units in plurality of predetermined locations (Figure 1). Terry discloses over the network transmission the enhanced range of frequencies comprising an extended frequency range beyond 1 GHz for additional channels (Column 5, lines 33-53, Column 6, lines 1-10). Terry discloses that the additional channels are in the extended frequency range from 550-1150 MHz (Column 5, lines 33-53) whereby enabling transmission of data at an extended range of frequencies and at substantially higher data rates (Column 5, lines 33-53).

Eldering discloses a network with a node, a home outlet unit, and a set top box connected to the home outlet unit (Figure 1, 71, 43, 25). Eldering discloses a plurality of home outlets connected to the at least one hub or node via cables (Figure 1, 71, 43, 25, 45), a plurality of set top boxes (STB) (Figure 1, 25, 27, Column 2, lines 53-55) connected each to a home outlet unit (Figure 1, 43), an enhanced home outlet unit

comprising a frequency conversion filtering circuit for separating the extended frequency range from the frequency range already in use or a filter which filters the frequency range in use from the extended frequency range (Column 5, lines 6-25). Eldering disclose a plurality of residences (Column 3, line 5), which would each include filters or home outlet units (Figure 1, 43).

Rakib discloses an extension unit or gateway (Figure 3, 14, Figure 4A) connected to a STB (Figure 3, 30, Figure 4A, 137) including a tuner (Figure 4A, 180, 100) for controlling additional channels in order to enable the user to interact with the additional channels is met by typically cable channels are 50 to 500 MHz and other channels for VOD are above 500 MHz (Page 12, paragraph 0119) and the user interacts with VOD channels for user requested video (Page 9, paragraph 0082). Rakib discloses whereby enabling transmission of data an extended data range of frequencies above 500 MHz (Page 12, paragraph 0119).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson to include an extended frequency range beyond 1 GHz for additional channels (Column 5, lines 33-53, Column 6, lines 1-10) whereby enabling transmission of data at an extended range of frequencies and at substantially higher data rates (Column 5, lines 33-53) as taught by Terry as there is an increasing desire for additional capacity in CATV distribution networks (Column 1, lines 41-51) as disclosed by Terry. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williamson to include a plurality of home outlets connected to the at least one hub or node via cables (Figure 1, 71, 43, 25, 45), a

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plurality of set top boxes (STB) (Figure 1, 25, 27, Column 2, lines 53-55) connected each to a home outlet unit (Figure 1, 43), an enhanced home outlet unit comprising a frequency conversion filtering circuit for separating the extended frequency range from the frequency range already in use or a filter which filters the frequency range in use from the extended frequency range (Column 5, lines 6-25) and a plurality of residences (Column 3, line 5), which would each include filters or home outlet units (Figure 1, 43) as taught by Eldering in order to not receive undesirable signals (Column 5, lines 6-25) as disclosed by Eldering. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williamson an extension unit or gateway (Figure 3, 14, Figure 4A) connected to a STB (Figure 3, 30, Figure 4A, 137) including a tuner (Figure 4A, 180, 100) for controlling additional channels in order to enable the user to interact with the additional channels is met by the disclosed typical cable channels are 50 to 500 MHz and a plurality of channels for VOD are above 500 MHz (Page 12, paragraph 0119) and the user interacts with VOD channels for user requested video (Page 9, paragraph 0082) as taught by Rakib in order to interface many different subscription data delivery to customers in an economical fashion (Page 3, paragraph 0020) as disclosed by Rakib.

Regarding Claim 59, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses video, analog and digital information (Column 3, lines 15-25, Column 4, lines 1-6). Rakib discloses utilizing a plurality of transmission channels (Page 12, paragraph 0119) and distributing audio (Page 12, paragraph 0119), video (Figure 2, 100, 102), text or web pages, which are written in

HTML via text or can include text (Page 12, paragraph 0119), analog (Figure 4A, 100) and digital (Figure 4A, 102) information.

Regarding Claim 60, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Terry discloses a range of 950 MHz or about 1 GHz to 1150 MHz, which is within the claimed range and therefore anticipates the claimed range of about 1 GHz to about 3 GHz.

Regarding Claim 61, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Terry discloses that the extended frequency ranges comprise upstream and downstream channels.

Regarding Claim 66, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Terry discloses an enhanced cable connector assembly comprising a coaxial adapter fitted to a standard cable connector for allowing the transmission of a signal modulated across the extended frequency range or tap which is provided with a drop unit which can allow the transmission of signals modulated over the extended frequency range as the frequency range can be 950 to 1150 MHz (Column 5, lines 6-50).

Regarding Claim 67, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses a compensation unit or filter which comprises a filter for separating between at least one upstream and downstream channel (Figure 6, 120).

Regarding Claim 68, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses a compensation unit with a single stage

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filter or triplexer for separating the enhanced range of frequency to the frequency range already in use with low end amplifiers (Figure 4, 5, 6), an extended downstream frequency range or high end filter (Figure 6, 122) and an extended upstream frequency range or high end filter (Figure 6, 120).

Regarding Claim 69, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses a downstream signal amplifier for amplifying a signal representative of information units transmitted by a transmission center to users (Figure 6, Column 5, lines 13-31); and an upstream signal amplifier for amplifying a signal representative of information sent by users to a transmission center (Figure 6, Column 5, lines 13-31), wherein the amplifying circuit handles gain and slope noise factors decayed in transmission coaxial lines as signal loss in cable occurs and amplifiers amplify the signal for the loss (Column 3, lines 39-60). Eldering also discloses a compensation unit with downstream and upstream amplifiers (Figure 1, 61) handling gain and slope (Column 4, lines 50-52).

Regarding Claim 73, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Terry discloses a enhanced home outlet splitter unit or termination unit including a signal divider or a splitter for distributing a split broadband signal modulated in an extended frequency range beyond 1 GHz or the headend delivers a broadband signal to via splitter to multiple users (Figure 1, 32, Column 5, lines 1-7) and an amplifier for compensating for the losses in the extended frequency range (Column 4, lines 46-60). Eldering includes an in home splitter (Figure 1, 41)

which allows the signals to be modulated and delivered to multiple users or set tops or personal computers (Column 2, lines 52-55).

Regarding Claim 74, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses the compensation unit is connected to the communications network as a standalone unit (Figure 4, 5, 6). Eldering discloses compensation unit as a standalone unit (Figure 1, 61). Terry discloses a standalone unit (Figure 1, 12, 18).

Regarding Claim 76, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses the compensation unit supports two-way transmission of signals in the extended frequency range (Figure 4, 5, 6). Rakib discloses bidirectional amplifiers or compensation unit, which supports two way asymmetrical transmissions of signals (Page 4, paragraph 0035). Terry discloses an extended frequency range of 950 to 1150 MHz in the downstream direction and 1150 to 1350 in the upstream direction. Eldering includes an in home splitter (Figure 1, 41) which allows the signals to be modulated and delivered to multiple users or set tops or personal computers (Column 2, lines 52-55), which allows two way transmission (Figure 34-41).

Regarding Claim 80, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 73. Terry discloses an enhanced home outlet splitter unit (Figure 1, 32, Column 5, lines 1-7). Terry discloses an extended frequency range of 950 to 1150 MHz in the downstream direction and 1150 to 1350 in the upstream direction (Column 5, lines 33-60).

19. Claims 62, 63, 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering and Rakib as applied to claim 58 above, and further in view of Preschutti (US 4,970,722).

Regarding Claim 62, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Terry discloses extended frequency range beyond 1 GHz (Column 5, lines 33-45). Williamson, Terry, Eldering, and Rakib are silent on a hub or node module connected to the hub or node for adding gain and slope to losses to the frequency range. Preschutti discloses bidirectional communication among a plurality of network user devices and external devices networks and databases (Column 9, lines 61-68, Column 10, lines 1-2). Preschutti disclose a central hub (Figure 3, 102) and a node, which is connected to the hub (Figure 3, 110) for adding gain and slope to losses to the frequency range or adding gain for the loss (Column 10, lines 19-68, Figure 5). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering and Rakib to include a node which is connected to the hub (Figure 3, 110) for adding gain and slope to losses to the frequency range or adding gain for the loss (Column 10, lines 19-68, Figure 5) as taught by Preschutti in order to provide easier to design, install, maintain and rearrange networks that are lower cost (Column 1, lines 56-59) as disclosed by Preschutti.

Regarding Claim 63, Williamson, Terry, Eldering, Rakib and Preschutti disclose all the limitations of Claim 62. Terry discloses extended frequency range beyond 1 GHz (Column 5, lines 33-45). Preschutti discloses the node module or node comprises a

data communication unit, the data communication unit comprises a duplex receiver or transmitter for communicating data across the frequency range as the node is able to receive and transmit data over a bidirectional path (Figure 3, Figure 5, Figure 6).

Regarding Claim 78, Williamson, Terry, Eldering, Rakib and Preschutti disclose all the limitations of Claim 62. Terry discloses extended frequency range beyond 1 GHz (Column 5, lines 33-45) and the asymmetrical network (Column 5, lines 33-60).

20. Claims 64, 65, 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering, Rakib and Preschutti as applied to claim 63, 62 above, and further in view of Ahmed et al (US 2005/0114903 and hereafter referred to as "Ahmed").

Regarding Claim 64, Williamson, Terry, Eldering, Rakib and Preschutti disclose all the limitations of Claim 63. Williamson, Terry, Eldering, Rakib and Preschutti are silent on a receiver transmitter for receiving data from a data communication network and for transmitting data to the data communication network, a demodulator-modulator for encoding the data; and a data router for directing the data to the data communication network and for directing the data to a central processing unit for processing. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124), node (Figure 1B, 126) and a plurality of STB (Figure 1, 134). Ahmed discloses the data communication unit or digital node transceiver (Figure 1B, 145) comprising a receiver-transmitter (Page 3, paragraph 0036) for receiving the data from a data communication network and for transmitting the data to the data communication

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network (Pages 3-4, paragraphs 0042-0043), a demodulator-modulator or modulator for encoding the data (Pages 3-4, paragraphs 0042-0043), and a data router for directing data to the data communication network (Figure 1B, Figure 10) or routing data to particular home (Figure 1B, Page 4, paragraph 0043) and for directing the data to a central processing unit for processing (Figure 10, 1010). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib and Preschutti to include a data communication unit or digital node transceiver (Figure 1B, 145) comprising a receiver-transmitter (Page 3, paragraph 0036) for receiving the data from a data communication network and for transmitting the data to the data communication network (Pages 3-4, paragraphs 0042-0043), a demodulator-modulator or modulator for encoding the data (Pages 3-4, paragraphs 0042-0043), and a data router for directing data to the data communication network (Figure 1B, Figure 10) or routing data to particular home (Figure 1B) and for directing the data to a central processing unit for processing (Figure 10, 1010) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

Regarding Claim 65, Williamson, Terry, Eldering, Rakib, and Preschutti disclose all the limitations of Claim 63. Williamson, Terry, Eldering, Rakib and Preschutti are silent on a multiplexer for communing a signal generated by the head end with data transmitted from the data communication unit. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124), node (Figure 1B, 126) and a plurality of STB (Figure 1, 134). Ahmed discloses the node comprising a

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multiplexer for combining a signal generated by the head end with data transmitted from the data communication unit or transceiver which is met by the node performing narrowcasting which allows a more tailored programming to be sent to the users for more interactive services as well as adding channels at the node (Page 4, paragraph 0043) and data from the headend is supplied to the node and then to the transceiver or data communication unit (Page 3, paragraph 0042). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib and Preschutti to include the node comprising a multiplexer for combining a signal generated by the head end with data transmitted from the data communication unit or transceiver (Page 4, paragraph 0043, Page 3, paragraph 0042) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

Regarding Claim 77, Williamson, Terry, Eldering, Rakib, and Preschutti disclose all the limitations of Claim 62. Terry discloses extended frequency range beyond 1 GHz (Column 5, lines 33-45). Preschutti discloses the node supports two-way transmission (Figure 3, 5, 6). Williamson, Terry, Eldering, Rakib, and Preschutti are silent on the node is connected as a symmetrical device to support two way symmetrical transmission of signals. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124) and node (Figure 1B, 126) and a plurality of STB (Figure 1, 134). Ahmed discloses two-way symmetrical transmission or sending as much information in the upstream direction as in the downstream (Page 2, paragraph 00015). Therefore, it would have been obvious to one of ordinary skill in the art to modify

Williamson in view of Terry, Eldering, Rakib and Preschutti to include two way symmetrical transmission or sending as much information in the upstream direction as in the downstream (Page 2, paragraph 0015) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

21. Claims 70, 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering and Rakib as applied to claim 58 above, and further in view of Dan et al (US 6,785,907 and hereafter referred to as "Dan").

Regarding Claim 70, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses a compensation unit amplifying a signal comprising: an input connection for receiving a downstream signal and for transmitting an upstream signal (Figure 6, 112); and at least one output connection (Figure 6, 114) providing the downstream signal after being processed by the frequency selective circuit and the amplifying circuit, and for receiving the upstream signal (Figure 4, Figure 5, Figure 6). Williamson is silent on an equalizer circuit coupled to an output connection of the frequency selective circuit for attenuating lower frequencies of the downstream and upstream signal; and at least one output connection providing the downstream signal after being processed by the equalizer circuit. Dan discloses a compensation unit comprising an amplifier to amplify the feed signal (Figure 4, Figure 5) and an equalizer coupled to output connection of the frequency selective circuit for attenuating lower frequencies of the downstream or an equalizer (Figure 4, 212) connected with an

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attenuator (Figure 4, 210) which is the output of the filter (Figure 4, 202), which attenuates lower frequencies (5-42 MHz) of the downstream and upstream signal (Figure 4, 210, Column 9, lines 63-67); and at least one output connection (Figure 6, 114) providing the downstream signal after being processed by the equalizer circuit (Figure 4, Figure 6, 200A, 200B).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering and Rakib to include a compensation unit comprising an equalizer coupled to output connection of the frequency selective circuit for attenuating lower frequencies of the downstream or an equalizer (Figure 4, 212) connected with an attenuator (Figure 4, 210) which is the output of the filter (Figure 4, 202), which attenuates lower frequencies (5-42 MHz) of the downstream and upstream signal (Figure 4, 210, Column 9, lines 63-67); and at least one output connection (Figure 6, 114) providing the downstream signal after being processed by the equalizer circuit (Figure 4, Figure 6, 200A, 200B) as taught by Dan in order to maintain signal strength and equalize signal across the frequency band of signals (Column 1, lines 50-67) as disclosed by Dan.

Regarding Claim 72, Williamson, Terry, Eldering, Rakib, and Dan disclose all the limitations of Claim 70. Rakib discloses the compensation unit further comprises a communication network line distribution unit coupled to the output connection of the compensation unit for receiving the downstream signal, the line distribution unit having an output connection for providing the downstream and upstream signal which is met by a feeder branch that is connected to output connection compensation unit or amplifier

for receiving the downstream signal and providing the downstream or upstream signal (Figure 1, 25, 27). Eldering meets the libation with feeder cables (Figure 7, Figure 1).

22. Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering and Rakib, Dan as applied to claim 70 above, and further in view of Jung (US 2003/0066088).

Regarding Claim 71, Williamson, Terry, Eldering, Rakib, and Dan disclose all the limitations of Claim 70. Dan discloses that the amplifying circuit is coupled to the output connection of the equalizer for amplification of the downstream signal (Figure 4, 212, 214). Williamson, Terry, Eldering, Rakib, and Dan are silent on the output connection of the equalizer circuit is coupled to amplifying circuit in the upstream signal. Jung discloses the amplifying circuit is coupled to the output connection of the equalizer for amplification of the upstream signal (Figure 5, 502, 503). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib and Dan to include the amplifying circuit is coupled to the output connection of the equalizer for amplification of the upstream signal (Figure 5, 502, 503) as taught by Jung in order to maintain signal strength and controlling the gain and slope (Page 2, paragraph 0027) as disclosed by Jung.

23. Claims 75, 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering and Rakib as applied to claim 58, 73 above, and further in view of Ahmed.

Regarding Claim 75, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 58. Williamson discloses compensation unit (Figure 4, 5, 5). Eldering discloses compensation unit (Figure 1, 61). Terry discloses extended frequency range beyond 1 GHz (Column 5, lines 33-45). Williamson, Terry, Eldering, Rakib, and Preschutti are silent on the node is connected as a symmetrical device to support two way symmetrical transmission of signals. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124) and a plurality of STB (Figure 1, 134). Ahmed discloses two-way symmetrical transmission or sending as much information in the upstream direction as in the downstream (Page 2, paragraph 0015). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib to include two way symmetrical transmission or sending as much information in the upstream direction as in the downstream (Page 2, paragraph 0015) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

Regarding Claim 79, Williamson, Terry, Eldering, and Rakib disclose all the limitations of Claim 73. Terry discloses extended frequency range beyond 1 GHz (Column 5, lines 33-45) and a home splitter unit (Figure 1). Williamson, Terry, Eldering, Rakib, and Preschutti are silent on the node is connected as a symmetrical device to support two way symmetrical transmission of signals. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124) and a plurality of STB (Figure 1, 134). Ahmed discloses two-way symmetrical transmission or sending as

much information in the upstream direction as in the downstream (Page 2, paragraph 0015). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib to include two way symmetrical transmission or sending as much information in the upstream direction as in the downstream (Page 2, paragraph 0015) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

24. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rakib in view of Caporizzo et al (US 6,014,547 and hereafter referred to as "Caporizzo").

Regarding Claim 81, Rakib discloses an extension unit or gateway to a STB comprising the elements of: a tuner (Figure 4A, 180, 100, 102) for controlling broadcast channels within an extended frequency range or range of frequencies above 500 MHz (Page 12, paragraph 0119). Also, Rakib receives satellite signals from the satellite feed (Figure 4A, 180). Rakib discloses a modem (Figure 4A, 70, Page 6, paragraph 0048, 0053), which performs encoding information and transmitting the to a user is met by the cable modem performing necessary functions for the cable modem transmit data to the user (Page 8, paragraph 0071-0076, Page 9, paragraph 0082, Page 10, paragraph 0088) and for decoding information received from the user and transmitting the information to a transmission center, which is met by the gateway's cable modem performing the necessary functions to format the information to send to the head end (Page 8, paragraph 0071-0076, Page 9, paragraph 0082, Page 10, paragraphs 0088,

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0091-0098). Rakib discloses a switch for enabling the selection of at least one mode of operation (Page 7, paragraph 0058, Page 4, paragraph 0036).

Caporizzo discloses an extension unit (Figure 2, 11) to a STB (Figure 1, 12) to comprise a filter for separating the extended frequency range or a range from 50-1000 MHz to downstream and upstream pass regions, which is met by the band pass filter or filters separate or filter frequencies outside desired range (Figure 2, 52, Column 3, lines 20-26). Therefore, it would have been obvious to one of ordinary skill in the art to modify Rakib to comprise a filter for separating the extended frequency range or a range from 50-1000 MHz to downstream and upstream pass regions, which is met by the band pass filter or filters separate or filter frequencies outside desired range (Figure 2, 52, Column 3, lines 20-26) as taught by Caporizzo in order to have cost effective way of increasing performance (Column 1, lines 29-39) as disclosed by Caporizzo.

25. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rakib in view of Caporizzo as applied to claim 81 above, and further in view of Ahmed.

Regarding Claim 83, Rakib and Caporizzo disclose all the limitations of Claim 81. Rakib discloses an extension unit or gateway to a STB comprising the elements of: a tuner (Figure 4A, 180, 100, 102) for controlling broadcast channels within an extended frequency range or range of frequencies above 500 MHz (Page 12, paragraph 0119). Rakib and Caporizzo are silent on the extension unit to a STB is connected as a symmetrical device to support two way symmetrical transmission of signals. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure

1B, 124) and node (Figure 1B, 126) and a plurality of STB (Figure 1, 134). Ahmed discloses two-way symmetrical transmission or sending as much information in the upstream direction as in the downstream (Page 2, paragraph 0015). Therefore, it would have been obvious to one of ordinary skill in the art to modify Rakib in view of Caporizzo to include two way symmetrical transmission or sending as much information in the upstream direction as in the downstream (Page 2, paragraph 0015) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

26. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rakib in view of Caporizzo as applied to claim 81 above, and further in view of Terry.

Regarding Claim 83, Rakib and Caporizzo disclose all the limitations of Claim 81. Rakib discloses that the extension unit to a STB is connected to a communication network as an asymmetrical unit to support two-way asymmetrical transmission of signals (Page 11, paragraphs 0108-0109). Rakib discloses transmitting downstream data in the extended frequency range or above 500 MHz (Page 12, paragraph 0119). Rakib and Caporizzo are silent on the two-way system transmitting data in upstream direction in the extended frequency range. Terry discloses transmitting data from the STB to support two way asymmetrical transmissions of signals in the extended frequency range (Column 5, lines 33-60). Therefore, it would have been obvious to one of ordinary skill in the art to modify Rakib in view of Caporizzo to support two way asymmetrical transmission of signals in the extended frequency range for upstream and

downstream directions (Column 5, lines 33-60) as taught by Terry as there is an increasing desire for additional capacity in CATV distribution networks (Column 1, lines 41-51) as disclosed by Terry.

27. Claim 84 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Dan.

Regarding Claim 84, Williamson discloses a compensation unit dividing and amplifying a signal comprising: a frequency band divider circuit for separating at least two signal streams for selective processing or triplex or multiplex amplifier which separates the communication spectrum in three or more portions (Figure 1); a downstream signal amplifying circuit for amplifying a signal representative of information units transmitted by a transmission center to users (Figure 6, Column 5, lines 13-31) ; and an upstream signal amplifying circuit for amplifying a signal representative of information sent by users to a transmission center (Figure 6, Column 5, lines 13-31); an input connection for receiving a downstream signal and for transmitting an upstream signal (Figure 6, 112); at least one frequency selective circuit (Figure 5, 122) coupled to the input connection (Figure 6, 112) for separating at least two signal streams (Column 5, lines 13-13, Figure 5, Figure 6), and output connection of the frequency selective circuit for attenuating lower frequencies of the downstream and upstream signal; and at least one output connection (Figure 6, 114) providing the downstream signal after being processed by the frequency selective circuit and the downstream and upstream amplifying circuits, and for receiving the upstream signal (Figure 4, Figure 5, Figure 6).

Williamson is silent on an equalizer circuit coupled to an output connection of the frequency selective circuit for attenuating lower frequencies of the downstream and upstream signal; and at least one output connection providing the downstream signal after being processed by the equalizer circuit.

Dan discloses a compensation unit comprising an amplifier to amplify the feed signal (Figure 4, Figure 5) and an equalizer coupled to output connection of the frequency selective circuit for attenuating lower frequencies of the downstream or an equalizer (Figure 4, 212) connected with an attenuator (Figure 4, 210) which is the output of the filter (Figure 4, 202), which attenuates lower frequencies (5-42 MHz) of the downstream and upstream signal (Figure 4, 210, Column 9, lines 63-67); and at least one output connection (Figure 6, 114) providing the downstream signal after being processed by the equalizer circuit (Figure 4, Figure 6, 200A, 200B).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson to include a compensation unit comprising an equalizer coupled to output connection of the frequency selective circuit for attenuating lower frequencies of the downstream or an equalizer (Figure 4, 212) connected with an attenuator (Figure 4, 210) which is the output of the filter (Figure 4, 202), which attenuates lower frequencies (5-42 MHz) of the downstream and upstream signal (Figure 4, 210, Column 9, lines 63-67); and at least one output connection (Figure 6, 114) providing the downstream signal after being processed by the equalizer circuit (Figure 4, Figure 6, 200A, 200B) as taught by Dan in order to maintain signal strength and equalize signal across the frequency band of signals (Column 1, lines 50-67) as disclosed by Dan.

28. Claim 85 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Dan as applied to claim 84 above, and further in view of Jung.

Regarding Claim 85, Williamson and Dan disclose all the limitations of Claim 84. Dan discloses that the amplifying circuit is coupled to the output connection of the equalizer for amplification of the downstream signal (Figure 4, 212, 214). Williamson and Dan are silent on the output connection of the equalizer circuit is coupled to amplifying circuit in the upstream signal. Jung discloses the amplifying circuit is coupled to the output connection of the equalizer for amplification of the upstream signal (Figure 5, 502, 503). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Dan to include the amplifying circuit is coupled to the output connection of the equalizer for amplification of the upstream signal (Figure 5, 502, 503) as taught by Jung in order to maintain signal strength and controlling the gain and slope (Page 2, paragraph 0027) as disclosed by Jung.

29. Claim 86 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Dan and Jung as applied to claim 85 above, and further in view of Rakib.

Regarding Claim 86, Williamson, Dan and Jung disclose all the limitations of Claim 85. Rakib discloses the compensation unit further comprises a communication network line distribution unit coupled to the output connection of the compensation unit for receiving the downstream signal, the line distribution unit having an output

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connection for providing the downstream and upstream signal which is met by a feeder branch that is connected to output connection compensation unit or amplifier for receiving the downstream signal and providing the downstream or upstream signal (Figure 1, 25, 27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williamson in view of Dan and Jung to include the compensation unit further comprises a communication network line distribution unit coupled to the output connection of the compensation unit for receiving the downstream signal, the line distribution unit having an output connection for providing the downstream and upstream signal which is met by a feeder branch that is connected to output connection compensation unit or amplifier for receiving the downstream signal and providing the downstream or upstream signal (Figure 1, 25, 27) as taught by Rakib in order to interface many different subscription data delivery to customers in an economical fashion (Page 3, paragraph 0020) as disclosed by Rakib.

30. Claim 87 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry. (Note: Williamson (Column 3, lines 35-41) incorporates Adams et al (US 5,819,036, Application number 08/572,521 and hereafter referred to "Adams") by reference for a more detailed description of the network.)

Regarding Claim 87, Williamson discloses in a communications network utilizing a communications media infrastructure for transmission of a broadband signal representative of information units received from and sent to external information

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sources is met by a communications network (Figure 1) utilizing media infrastructure (Figure 1, 20) for transmission of broadband analog signal representative of information units or television data received from external information sources and information units or data is sent to cable operations center or external source (Figure 2A, bottom left).

Adams discloses that the back end LAN facilitates session management and transactional management services (Column 3, lines 43-55), and the back end LAN provides data to the cable operations center or external information source (Figure 2A).

Williamson discloses the information units or analog signals encoded into modulated electronic signals (Column 3, lines 27-35), the signals multiplexed into the broadband electronic signal (Figure 2A, 54), from a transmission center via diverse electronic components operative in the preservation of the transmitted signal to a plurality of users (Figure 1, Figure 2A) and from the plurality of users via the communication media network via the diverse electronic components operative in maintaining the functional characteristics of the transmitted broadband signal to the transmission center (Figure 1, Figure 2A, Column 3, lines 47-60), a method of sending information across an extended frequency range or high end frequency range (Figures 4, 5, 6). Williamson discloses combining signals representative of the information received from information sources into a combined broadband signal modulated across a high frequency range (Figure 1, Figure 2A). Williamson discloses superimposing signals representative of information units received from additional information sources onto the broadband signal (Figure 1, 18, Figure 2A, Column 3, lines 27-35); modulating and transmitting the combined broadband signal across an extended frequency range or the high end frequency range

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to a plurality of users or to a transmission center (Figure 1, Figure 2A, Column 3, lines 47-60); amplifying the broadband signal for compensating for line drop losses due to network infrastructure topography (Column 4, lines 39-42); adding gain and slope to the broadband signal for compensating for signal loss (Column 3, lines 47-60, Column 4, lines 39-50). Williamson is silent on the extended frequency range comprises frequencies beyond 1 GHz, filtering the broadband signal dividing the broadband signal according to frequency regions and according to predefined parameters relating to signal content type and direction of the broadband signal, tuning the divided signal for controlling the division of the divided signal into predefined frequency regions, and whereby utilizing a standard transmission medium previously operating in significantly narrower bandwidth for transmission in the extended frequency range.

Terry discloses a cable television network (Figure 1), from a headend for transmitting television signals to customer premises (Column 4, lines 38-50, Column 5, lines 33-41) and amplifying line drop losses (Figure 1). Terry discloses over the network transmission the enhanced range of frequencies comprising an extended frequency range comprises frequencies beyond 1 GHz for additional channels (Column 5, lines 33-53, Column 6, lines 1-10). Terry discloses that the additional channels are in the extended frequency range from 550-1150 MHz (Column 5, lines 43-43). Terry discloses filtering the broadband signal dividing the broadband signal according to frequency regions and according to predefined parameters relating to signal content type and direction of the broadband signal (Column 6, lines 33-52), and tuning the divided signal for controlling the division of the divided signal into predefined frequency

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regions or data is received at the terminals, which necessarily tunes the divided signal (Column 7, lines 7, lines 44-61); whereby utilizing a standard transmission medium previously operating in significantly narrower bandwidth for transmission in the extended frequency range (Figure 1, 12, 16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williamson to include an extended frequency range beyond 1 GHz for additional channels (Column 5, lines 33-53, Column 6, lines 1-10), filtering the broadband signal dividing the broadband signal according to frequency regions and according to predefined parameters relating to signal content type and direction of the broadband signal (Column 6, lines 33-52), and tuning the divided signal for controlling the division of the divided signal into predefined frequency regions or data is received at the terminals, which necessarily tunes the divided signal (Column 7, lines 7, lines 44-61); whereby utilizing a standard transmission medium previously operating in significantly narrower bandwidth for transmission in the extended frequency range (Figure 1, 12, 16) as taught by Terry as there is an increasing desire for additional capacity in CATV distribution networks (Column 1, lines 41-51) as disclosed by Terry.

Regarding Claim 88, Williamson and Terry disclose all the limitations of Claim 87. Terry discloses a range of 950 MHz or about 1 GHz to 1150 MHz, which is within the claimed range and therefore anticipates the claimed range of about 1 GHz to about 3 GHz.

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31. Claim 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson and Terry as applied to claim 87 above, and further in view of Rakib.

Regarding Claim 89, Williamson and Terry all the limitations of Claim 87. Williamson discloses video, analog and digital information (Column 3, lines 15-25, Column 4, lines 1-6). Terry discloses a plurality of channels (Column 5, lines 33-40). Williamson and Terry are silent on a cable television system carrying video, audio, and data information units and any combination thereof to a plurality of users utilizing a plurality of transmission channels. Rakib discloses a cable television system carrying video (Figure 2, 100, 102, Page 12, paragraph 0119), audio (Page 12, paragraph 0119), and data information units including web pages or metadata such as VOD titles (Page 12, paragraph 0119, Page 9, paragraph 0082) and any combination thereof (Page 12, paragraph 0119) to a plurality of users (Figure 1, 31, 39) utilizing a plurality of transmission channels (Page 12, paragraph 0119). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williamson to include a cable television system carrying video (Figure 2, 100, 102, Page 12, paragraph 0119), audio (Page 12, paragraph 0119), and data information units including web pages or metadata such as VOD titles (Page 12, paragraph 0119, Page 9, paragraph 0082) and any combination thereof (Page 12, paragraph 0119) to a plurality of users (Figure 1, 31, 39) utilizing a plurality of transmission channels (Page 12, paragraph 0119) as taught by Rakib in order to interface many different subscription data delivery to customers in an economical fashion (Page 3, paragraph 0020) as disclosed by Rakib.

32. Claim 90 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering, Rakib and Caporizzo. (Note: Williamson (Column 3, lines 35-41) incorporates Adams et al (US 5,819,036, Application number 08/572,521 and hereafter referred to "Adams") by reference for a more detailed description of the network.)

Regarding Claim 90, Williamson discloses a two-way multi-user transmission (Figure 1, 16, 32, Column 3, lines 48-60) and communication having the capability of utilizing an expanded range of frequencies or 50-750 MHz (Column 4, lines 40-50, Figure 4, Figure 5, Figure 6) in order to transmit information units encoded into electronic signals (Column 3, lines 27-35) and inserted into a transmittable broadband signal without affecting the simultaneous transmission of existing transmittable information to a plurality of users (Figure 1, 24, Column 3, lines 27-60), the system comprising: a compensation unit include at least one downstream and upstream amplifying units for amplifying the broadband signal (Figure 4, Figure 5, Figure 6, Column 4, lines 39-44).

Terry discloses a cable television network (Figure 1), from a headend for transmitting television signals to customer premises (Column 4, lines 38-50, Column 5, lines 33-41). Terry discloses over the network transmission the enhanced range of frequencies comprising an extended frequency range beyond 1 GHz for additional channels with more signals (Column 5, lines 33-53, Column 6, lines 1-10). Terry discloses that the additional channels are in the extended frequency range from 550-

1150 MHz (Column 5, lines 33-53). Terry discloses a home outlet splitter unit or splitter including a signal divider for distributing a split broadband signal modulated in an extended frequency range beyond 1 GHz or the headend delivers a broadband signal to via splitter to multiple users (Figure 1, 32, Column 5, lines 1-7).

Eldering discloses a network with a node, a home outlet unit, and a set top box connected to the home outlet unit (Figure 1, 71, 43, 25). Eldering discloses a home outlet unit comprising a filter for separating the broadband signal into a predefined range of frequencies and for manipulating the broadband signal predefined range of frequencies which filters the frequency range in use from the extended frequency range to block noise (Column 5, lines 6-25).

Rakib discloses an extension unit or gateway (Figure 3, 14, Figure 4A) to a STB (Figure 3, 30, Figure 4A, 137) for interfacing with a terminal or any other communication device (Figure 3, 22) comprising at least one tuner (Figure 4A, 180, 100, 102) for controlling additional channels within the extended frequency range or typically cable channels are 50 to 500 MHz and other channels for VOD are above 500 MHz (Page 12, paragraph 0119); at least one modulator which is met by the gateway modulating or formatting upstream data (Page 8, paragraph 0071-0076, Page 9, paragraph 0082, Page 10, paragraphs 0088, 0091-0098), and at least one demodulator (Figure 4A, 138) for decoding the broadband signal in order to enable a user to interact with channels or elements of the broadband signal and encoding information generated by the user of by the STB into an upstream region of the broadband signal (Page 8, paragraph 0071-0076, Page 9, paragraph 0082, Page 10, paragraphs 0088, 0091-0098).

Caporizzo discloses an extension unit (Figure 2, 11) to a STB (Figure 1, 12) to comprise at least one filter for separating the predefined range of frequencies (Figure 2, 52, Column 3, lines 20-26).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson to include a home outlet splitter unit or splitter including a signal divider for distributing a split broadband signal modulated in an extended frequency range beyond 1 GHz or the headend delivers a broadband signal to via splitter to multiple users (Figure 1, 32, Column 5, lines 1-7) as taught by Terry as there is an increasing desire for additional capacity in CATV distribution networks (Column 1, lines 41-51) as disclosed by Terry. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williamson to include a home outlet unit comprising a filter for separating the broadband signal into a predefined range of frequencies and for manipulating the broadband signal predefined range of frequencies which filters the frequency range in use from the extended frequency range to block noise (Column 5, lines 6-25) as taught by Eldering in order to not receive undesirable signals (Column 5, lines 6-25) as disclosed by Eldering. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williamson to include an extension unit or gateway (Figure 3, 14, Figure 4A) connected to a STB (Figure 3, 30, Figure 4A, 137) including a tuner (Figure 4A, 180, 100) for controlling additional channels in order to enable the user to interact with the additional channels is met by the disclosed typical cable channels are 50 to 500 MHz and a plurality of channels for VOD are above 500 MHz (Page 12, paragraph 0119) and the

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user interacts with VOD channels for user requested video (Page 9, paragraph 0082) as taught by Rakib in order to interface many different subscription data delivery to customers in an economical fashion (Page 3, paragraph 0020) as disclosed by Rakib. Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson to comprise at least one filter for separating the predefined range of frequencies (Figure 2, 52, Column 3, lines 20-26) as taught by Caporizzo in order to have cost effective way of increasing performance (Column 1, lines 29-39) as disclosed by Caporizzo.

Regarding Claim 91, Williamson, Terry, Eldering, Rakib, and Caporizzo disclose all the limitations of Claim 90. Terry discloses an enhanced cable connector comprising a coaxial adapter fitted to a standard cable connector for allowing the transmission of a downstream and upstream transmission of broadband signals across the extended frequency range or tap which is provided with a drop unit which can allow the transmission of signals modulated over the extended frequency range as the frequency range can be 950 to 1150 MHz (Column 5, lines 6-50).

Regarding Claim 94, Williamson, Terry, Eldering, Rakib, and Caporizzo disclose all the limitations of Claim 90. Terry discloses a range of 950 MHz or about 1000 MHz to 1150 MHz, which is within the claimed range and therefore anticipates the claimed range of about 1000 MHz to about 3000 MHz.

33. Claim 92, 95 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering, Rakib and Caporizzo as applied to claim 90, 94 above, and further in view of Ahmed.

Regarding Claim 92, Williamson, Terry, Eldering, Rakib, Caporizzo disclose all the limitations of Claim 90. Terry discloses transmitting broadband signals across the extended frequency range (Column 5, lines 33-60). Williamson, Terry, Eldering, Rakib and Caporizzo are silent on a data communication unit, the data communication unit comprising at least one data router, at least one modulator, at least one demodulator; and a central processing unit for receiving or transmitting broadband signals across the extended frequency range. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124), node (Figure 1B, 126) and a plurality of STB (Figure 1, 134). Ahmed discloses the data communication unit or digital node transceiver (Figure 1B, 145) comprising a data router or transmitter (Figure 1B, Figure 10), at least one modulator (Pages 3-4, paragraphs 0042-0043), and processor as a transceiver processes signals (Page 3, paragraph 0037). It is necessarily included that a demodulator is a part of the transceiver or data communication unit as it receives data and transmits data upstream (Figure 1B) and the data needs to be converted or demodulated as the data received and transmitted downstream, the transmitter converts and modulates the data (Page 3, paragraph 0042). Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib and Caporizzo to include the data communication unit or digital node transceiver (Figure 1B, 145) comprising a data router or transmitter (Figure 1B, Figure 10), at least

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one modulator (Pages 3-4, paragraphs 0042-0043), a demodulator and processor as a transceiver processes signals (Page 3, paragraph 0037) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

Regarding Claim 95, Williamson, Terry, Eldering, Rakib, Caporizzo disclose all the limitations of Claim 94. Terry discloses extended frequency range of 950 to 1150 or 1150 to 1350 MHz for upstream and downstream data, which ranges of about 1000 to 3000 MHz (Column 5, lines 33-60). Williamson, Terry, Eldering, Rakib, and Caporizzo are silent on the node is connected as a symmetrical mode in the extended range and downstream and upstream band each of a range of about 1000 MHz. Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124) and node (Figure 1B, 126) and a plurality of STB (Figure 1, 134). Ahmed discloses two way symmetrical transmission or sending as much information in the upstream direction as in the downstream and that the bandwidth can be 900 MHz to 1 GHz (Page 2, paragraph 0015), which meets the limitation of the downstream and upstream band each of a range of about 1000 MHz. Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib and Caporizzo symmetrical transmission or sending as much information in the upstream direction as in the downstream and that the bandwidth can be 900 MHz to 1 GHz (Page 2, paragraph 0015) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

34. Claim 93 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson in view of Terry, Eldering, Rakib and Caporizzo as applied to claim 90 above, and further in view of Preschutti and Ahmed.

Regarding Claim 93, Williamson, Terry, Eldering, Rakib and Caporizzo disclose all the limitations of Claim 90. Terry discloses extended frequency range beyond 1 GHz (Column 5, lines 33-45). Williamson, Terry, Eldering, Rakib and Caporizzo are silent on a hub or node module connected to the hub or node for adding gain and slope to losses to the frequency range. Preschutti discloses bidirectional communication among a plurality of network user devices and external devices networks and databases (Column 9, lines 61-68, Column 10, lines 1-2). Preschutti disclose a central hub (Figure 3, 102) and a node, which is connected to the hub (Figure 3, 110) for adding gain and slope to losses to the frequency range or adding gain for the loss (Column 10, lines 19-68, Figure 5). Ahmed discloses a network with headend (Figure 1B, 106), which is connected to hub (Figure 1B, 124), node (Figure 1B, 126) and a plurality of STB (Figure 1, 134). Ahmed discloses the node comprising a multiplexer for combining a signal generated by the head end with data transmitted from the data communication unit or transceiver which is met by the node performing narrowcasting which allows a more tailored programming to be sent to the users for more interactive services as wells adding channels at the node (Page 4, paragraph 0043) and data from the headend is supplied to the node and then to the transceiver or data communication unit (Page 3, paragraph 0042).

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Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib and Caporizzo to include a node which is connected to the hub (Figure 3, 110) for adding gain and slope to losses to the frequency range or adding gain for the loss (Column 10, lines 19-68, Figure 5) as taught by Preschutti in order to provide easier to design, install, maintain and rearrange networks that are lower cost (Column 1, lines 56-59) as disclosed by Preschutti. Therefore, it would have been obvious to one of ordinary skill in the art to modify Williamson in view of Terry, Eldering, Rakib and Caporizzo to include the node comprising a multiplexer for superimposing additional signals by the head end with data transmitted from the data communication unit or transceiver (Page 4, paragraph 0043, Page 3, paragraph 0042) as taught by Ahmed in order to provide interactive services to the subscribers (Page 2, paragraph 00015) as disclosed by Ahmed.

### ***Conclusion***

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farzana E. Hossain whose telephone number is 571-272-5943. The examiner can normally be reached on Monday to Friday 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on 571-272-7294. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

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VIVEK SRIVASTAVA  
PRIMARY EXAMINER